

Appl. No. 10/006,419

Amdt. dated January 6, 2005

Reply to Office action of October 6, 2004

CENTRAL FAX CENTER

JAN 06 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and
listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A synthetic resin-impregnated
body, comprising:

a primary product formed of an expanded or at least partially
recompressed expanded graphite having a liquid-accessible open
pore system;

said primary product having an ash value limited to not more
than four percent of the primary product;

said primary product being impregnated with at least one of:

at least one solvent-free, low-viscosity, storage-stable,
polymerizable acrylic resin system; and

polymers obtained by curing said at least one resin
system.

Claim 2 (original). The synthetic resin-impregnated body
according to claim 1, wherein said at least one acrylic resin

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system contains triethyleneglycol dimethacrylate and at least one initiator system.

Claim 3 (original). The synthetic resin-impregnated body according to claim 2, wherein said at least one acrylic resin system contains azo initiators as said at least one initiator.

Claim 4 (original). The synthetic resin-impregnated body according to claim 3, wherein said azo initiators contained in said at least one acrylic resin system are selected from the group consisting of 2,2'-dimethyl-2,2'-azodipropionitrile, 1,1'-azobis(1-cyclohexanecarbonitrile) and azoisobutyric acid dinitrile.

Claim 5 (original). The synthetic resin-impregnated body according to claim 1, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two days.

Claim 6 (original). The synthetic resin-impregnated body according to claim 1, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two weeks.

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Claim 7 (original). The synthetic resin-impregnated body according to claim 1, including up to 50% by weight of acrylic resin.

Claim 8 (original). The synthetic resin-impregnated body according to claim 1, including 5 to 25% by weight of acrylic resin.

Claim 9 (original). The synthetic resin-impregnated body according to claim 1, including 10 to 20% by weight of acrylic resin.

Claim 10 (previously presented). A synthetic resin-impregnated body, comprising:

a primary product formed of an expanded or at least partially recompressed expanded graphite having a liquid-accessible open pore system, said primary product containing fillers selected from the group consisting of ceramic fillers, mineral fillers, electrically non-conductive fillers, and electrically conductive fillers;

said primary product being impregnated with at least one of:

at least one solvent-free polymerizable acrylic resin system; and

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polymers obtained by curing said at least one resin system.

Claim 11 (previously presented). The synthetic resin-impregnated body according to claim 1, including at least two independently held together networks, one of said networks being formed of a connected framework made of expanded or expanded and thereafter at least partially recompressed graphite that is thermally conductive and has an electrical volume resistance from 0.10 to 0.77 m Ω , and the other of said networks being a connected network made of synthetic material having penetrated into said graphite.

Claim 12 (previously presented). The synthetic resin-impregnated body according to claim 1, including a surface, regions close to said surface, and a remaining part, said at least one acrylic resin system disposed only in one of said remaining part and said regions.

Claim 13 (original). The synthetic resin-impregnated body according to claim 1, wherein a continuous resin surface film is not present and the body is electrically conductively contactable.

Claim 14 (currently amended). A process for producing a body containing at least one synthetic resin, which comprises:

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providing a primary product formed of expanded or at least partially recompressed expanded graphite having a liquid-accessible pore system;

limiting an ash value to not more than four percent of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system;

impregnating the primary product with at least one solvent-free, polymerizable acrylic resin system to form a resin-containing, uncured intermediate product; and

finally subjecting the resin-containing, uncured intermediate product to a curing treatment for the at least one resin system.

Claim 15 (original). The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises processing the resin-containing, uncured intermediate product to form a shaped body; and carrying out the subjecting step by subjecting the uncured shaped body produced from the uncured intermediate product to a curing treatment for the at least one resin system.

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Claim 16 (original). The process for producing a body containing at least one synthetic resin according to claim 15, which further comprises simultaneously shaping the acrylic resin-containing body and curing the resin system that is present as a result of temperature impact.

Claim 17 (canceled).

Claim 18 (previously presented). A process for producing a body containing at least one synthetic resin which comprises:

providing a primary product formed of expanded or at least partially recompressed expanded graphite having a liquid-accessible pore system;

limiting an ash value to not more than two percent of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system;

impregnating the primary product with at least one solvent-free polymerizable acrylic resin system to form a resin-containing, uncured intermediate product;

processing the resin-containing, uncured intermediate product to form a shaped body;

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finally subjecting the resin-containing, uncured intermediate product to a curing treatment for the at least one resin system;

carrying out the subjecting step by subjecting the uncured shaped body produced from the uncured intermediate product to a curing treatment for the at least one resin system; and

simultaneously shaping the acrylic resin-containing body and curing the resin system that is present as a result of temperature impact.

Claim 19 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises maintaining a bulk density in a range of from 0.1 to 1.8 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

Claim 20 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises maintaining a bulk density in a range of from 0.3 to 1.5 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

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Claim 21 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, which further comprises maintaining a bulk density in a range of from 0.5 to 1.3 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

Claim 22 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, is performed with acrylic resins having a viscosity at room temperature of less than 100 mPa.s.

Claim 23 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, is performed with acrylic resins having a viscosity at room temperature of less than 50 mPa.s.

Claim 24 (previously presented). The process for producing a body containing at least one synthetic resin according to

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claim 14, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, is performed with acrylic resins having a viscosity at room temperature of less than 20 mPa·s.

Claim 25 (original). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up up to 100% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 26 (original). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up 5 to 35% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 27 (original). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore

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system, takes-up 10 to 25% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 28 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the step of curing the acrylic resins is performed in less than ten minutes under the effect of temperatures of up to 200°C.

Claim 29 (previously presented). The process for producing a body containing at least one synthetic resin according to claim 14, wherein the step of curing the acrylic resins is performed in less than three minutes under the effect of temperatures of up to 200°C.

Claim 30 (previously presented). A process for producing a body containing at least one synthetic resin, which comprises:

providing a primary product formed of expanded or at least partially recompressed expanded graphite having a liquid-accessible pore system;

mixing the expanded graphite with fillers selected from the group consisting of ceramic fillers, mineral fillers,

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electrically non-conductive fillers and electrically
conductive fillers;

processing the mixed expanded graphite to form a filler-
containing primary product; and

then impregnating the primary product with at least one
solvent-free polymerizable acrylic resin system to form a
resin-containing, uncured intermediate product; and

finally subjecting the resin-containing, uncured intermediate
product to a curing treatment for the at least one resin
system.

Claim 31 (currently amended). A sealing element, comprising:
a synthetic resin-impregnated body having a primary product
formed of an expanded or at least partially recompressed
expanded graphite and having a liquid-accessible pore system;
said graphite being impregnated with at least one of:

at least one solvent-free polymerizable acrylic resin
system including triethyleneglycol dimethacrylate and at
least one azo initiator; and

polymers obtained by curing said at least one resin
system.

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Claim 32 (currently amended). A fuel cell component,
comprising:

a synthetic resin-impregnated body formed of an expanded or at
least partially recompressed expanded graphite having a
liquid-accessible pore system; said graphite being impregnated
with at least one of:

at least one solvent-free polymerizable acrylic resin
system including triethyleneglycol dimethacrylate and at
least one azo initiator; and

polymers obtained by curing said at least one resin
system.

Claim 33 (previously presented). A heat-conducting element,
comprising:

a synthetic resin-impregnated body having a primary product
formed of an expanded or at least partially recompressed
expanded graphite having a liquid-accessible open pore system;
said graphite being impregnated with at least one of:

at least one solvent-free polymerizable acrylic resin
system; and

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polymers obtained by curing said at least one resin system.

Claim 34 (previously presented). The sealing element according to claim 31, having a gas permeability from 0.001 to 0.016 mg/m².s.

Claim 35 (previously presented). A fuel cell using oxygen as an oxidant, comprising the fuel cell component according to claim 32.

Claim 36 (new). The synthetic resin-impregnated body according to claim 10, wherein said at least one acrylic resin system contains triethyleneglycol dimethacrylate and at least one initiator system.

Claim 37 (new). The synthetic resin-impregnated body according to claim 36, wherein said at least one acrylic resin system contains azo initiators as said at least one initiator.

Claim 38 (new). The synthetic resin-impregnated body according to claim 37, wherein said azo initiators contained in said at least one acrylic resin system include 2,2'-dimethyl-2,2'-azodipropiononitrile, and 1,1'-azobis(1-cyclohexanecarbonitrile).

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Claim 39 (new). The synthetic resin-impregnated body according to claim 10, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two days.

Claim 40 (new). The synthetic resin-impregnated body according to claim 10, wherein said at least one acrylic resin system has a storage stability at room temperature of more than two weeks.

Claim 41 (new). The synthetic resin-impregnated body according to claim 10, including up to 50% by weight of acrylic resin.

Claim 42 (new). The synthetic resin-impregnated body according to claim 10, including 5 to 25% by weight of acrylic resin.

Claim 43 (new). The synthetic resin-impregnated body according to claim 10, including 10 to 20% by weight of acrylic resin.

Claim 44 (new). The synthetic resin-impregnated body according to claim 10, including at least two independently held together networks, one of said networks being formed of a connected framework made of expanded or expanded and

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thereafter at least partially recompressed graphite that is thermally conductive and has an electrical volume resistance from 0.10 to 0.77 mΩ, and the other of said networks being a connected network made of synthetic material having penetrated into said graphite.

Claim 45 (new). The synthetic resin-impregnated body according to claim 10, including a surface, regions close to said surface, and a remaining part, said at least one acrylic resin system disposed only in one of said remaining part and said regions.

Claim 46 (new). The synthetic resin-impregnated body according to claim 10, wherein a continuous resin surface film is not present and the body is electrically conductively contactable.

Claim 47 (new). A heat-conducting element, comprising:
a synthetic resin-impregnated body according to claim 10.

Claim 48 (new). A heat-conducting element, comprising:
a synthetic resin-impregnated body according to claim 1.

Claim 49 (new). The process for producing a body containing at least one synthetic resin according to claim 30, which further comprises processing the resin-containing, uncured

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intermediate product to form a shaped body; and carrying out the subjecting step by subjecting the uncured shaped body produced from the uncured intermediate product to a curing treatment for the at least one resin system.

Claim 50 (new). The process for producing a body containing at least one synthetic resin according to claim 49, which further comprises simultaneously shaping the acrylic resin-containing body and curing the resin system that is present as a result of temperature impact.

Claim 51 (new). The process for producing a body containing at least one synthetic resin according to claim 30, which further comprises maintaining a bulk density in a range of from 0.1 to 1.8 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

Claim 52 (new). The process for producing a body containing at least one synthetic resin according to claim 30, which further comprises maintaining a bulk density in a range of from 0.3 to 1.5 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

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Claim 53 (new). The process for producing a body containing at least one synthetic resin according to claim 30, which further comprises maintaining a bulk density in a range of from 0.5 to 1.3 g/cm³ of the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system.

Claim 54 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system is performed with acrylic resins having a viscosity at room temperature of less than 100 mPa.s.

Claim 55 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, is performed with acrylic resins having a viscosity at room temperature of less than 50 mPa.s.

Claim 56 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the step of impregnating the primary product made of expanded or at least partially recompressed expanded graphite having an

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open pore system is performed with acrylic resins having a viscosity at room temperature of less than 20 mPa.s.

Claim 57 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up up to 100% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 58 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up 5 to 35% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 59 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the primary product made of expanded or at least partially recompressed expanded graphite having an open pore system, takes-up 10 to 25% by weight of its own weight of acrylic resins, during the impregnating step.

Claim 60 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein

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the step of curing the acrylic resins is performed in less than ten minutes under the effect of temperatures of up to 200°C.

Claim 61 (new). The process for producing a body containing at least one synthetic resin according to claim 30, wherein the step of curing the acrylic resins is performed in less than three minutes under the effect of temperatures of up to 200°C.